

HEWLETT PACKARD



DETECTOR ADAPTER

HP 85025C

OPERATING AND SERVICE MANUAL

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MANUAL, in General Information.
For additional information concerning serial numbers,
refer to INSTRUMENTS COVERED BY THIS
adapters with serial number 00100 and above.
This manual applies directly to HP 85025C detector

SERIAL NUMBERS

DETECTOR ADAPTER HP 85025C

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OPERATION

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Figure 1. HP 85025C and Accessories Supplied

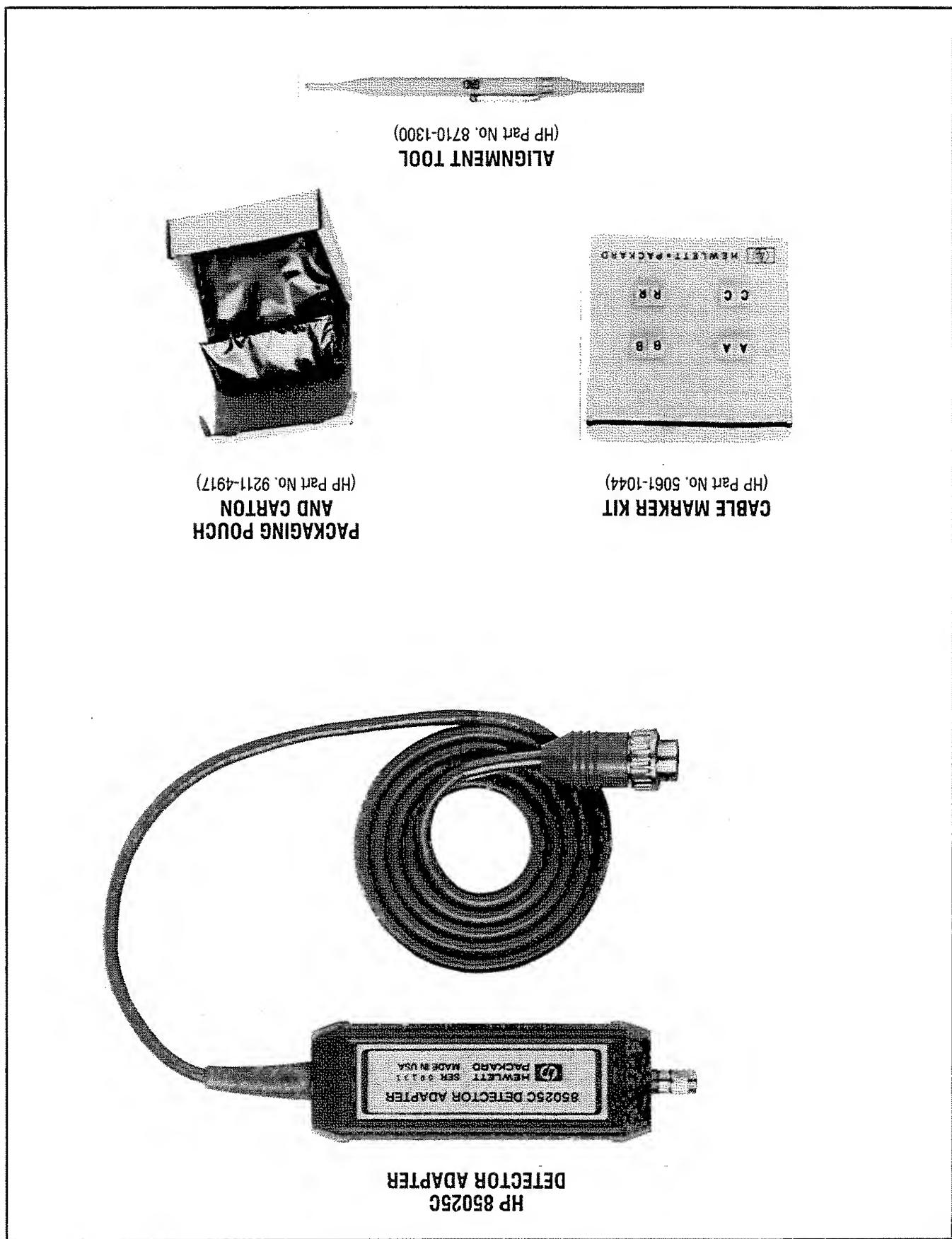


Figure 2 shows an example of HP 85025C performance with an HP U422A detector.

PERFORMANCE

Table 1 lists the HP 85025C typical operating characteristics.

TypICAL OPERATING CHARACTERISTICS

The HP 85025C detector adapter is used to adapt any standard diode detector output for display on the HP 8757A scalar network analyzer (it is NOT compatible with the HP 8755C or 8756A scalar network analyzers). The detector adapter enables the analyzer to measure either modulated (AC) or unmodulated frequency range of the HP 8757A to that of the detector used.

DESCRIPTION

CaUTION This indicates a mechanical hazard. **Caution** calls attention to an operating procedure, practice, etc., that, if not correctly performed or adhered to, can cause damage to (or destruction of) parts or all of the instrument. Do not continue past a **Caution** until you fully understand and meet the stated conditions.

WARNING This indicates a personal hazard. **Warning** calls attention to a procedure, practice, etc., that, if not performed correctly, can cause personal injury. Do not continue past a **Warning** until you fully understand and meet the stated conditions.

Safety symbols

Read this manual to become familiar with all safety instructions before you use the HP 85025C detector adapter. This product was designed and tested in accordance with international standards.

General

SAFETY CONSIDERATIONS

Operating information is provided under the heading **OPERATION**. **OPERATOR'S VERIFICATION** contains instructions for verifying that your detector adapter is operating correctly. HP 85025C adjustments are under the heading **ADJUSTMENTS**, and repair information is under the heading **SERVICE**.

This manual contains information required to operate, test and service the Hewlett-Packard 85025C detector adapter. Figure 1 shows the instrument and the accessories that are supplied with it.

INTRODUCTION

GENERAL INFORMATION

The equipment required for testing the HP 85025C is listed in Table 3. Other equipment may be substituted if it meets or exceeds the critical specifications indicated in the table.

RECOMMENDED TEST EQUIPMENT

7. A dual directional coupler (or two single directional couplers) or a directional bridge.
6. For AC mode only: Either the source must be capable of 27.778 KHz squarewave amplitude modulation or, if the RF source cannot provide the 11665B) that squarewave modulates the RF signal.
5. A source covering the frequency range of the detector(s) used.
4. An HP 8757A scatter network analyzer (firmware revision 2.0, or later. A firmware update kit is available; order HP P/N 08757-60051).
3. One connector adapter (if required) for each detector (see Table 2).
2. One HP 85025C for each detector.
1. One or more separate (zero biased, crystal, silicon or gallium arsenide) detectors (e.g. HP 422 series).

To make reflection and transmission measurements you will need:

EQUIPMENT REQUIRED BUT NOT SUPPLIED

To order these accessories, refer to ORDERING PARTS under the major heading SERVICE.

The following accessories are available for the HP 85025C:
HP 11679A, 7.6 metre (25 foot) extension cable.
HP 11679B, 61 metre (200 foot) extension cable.

To keep this manual as current as possible, you should periodically request the latest manual changes supplement. The supplement contains information that applies to it's print date and part number, which appear on the title page. Complete copies of the supplement are available from your local Hewlett-Packard office.

A detector adapter manufactured after the printing of this manual may require a manual changes supplement to document change information. When application to change information, the supplement contains information that applies to all instruments, regardless of their serial number.

Each HP 85025C detector adapter has a unique serial number. This manual applies to instruments with serial number 100 and above.

INSTRUMENTS COVERED BY THIS MANUAL

Dynamic Range:	Function of the external detector.
Maximum Input Voltage:	DC: $\pm 10V$; AC: 10V peak-to-peak.
Dimensions:	Cable length is 1.22 m (48 in).
Weight:	Net 0.24 kg (0.5 lb); Shipping 1.0 kg (2.2 lb).
Maximum Measurable Input Voltage:	DC: $\pm 3V$; AC: 3V peak-to-peak.

Table 1. Typical Operating Characteristics

Also, notify the carrier if the shippings container is damaged or if the cushioning material shows signs of stress. Keep all shipping materials for the carrier's inspection. Hewlett-Packard will arrange for repair or replacement without waiting for a claim settlement.

- * The shipping contents are incomplete.
- * There is mechanical damage or defect.

* The instrument does not pass the operator's verification and the procedures under SERVICE do not correct the problem.

Notify your nearest Hewlett-Packard office if any of the following conditions exist:

1. Check the package for completeness. Figure 1 shows the items you should receive.
2. Check connector, cable and body for mechanical damage.
3. Test the detector adapter electrically. Refer to OPERATOR'S VERIFICATION in this manual.

If the shippping container or cushioning material is damaged, keep it until the contents of the shipment are checked for completeness, and the instrument is checked both mechanically and electrically.

INITIAL INSPECTION

- * Be sure that all connectors are clean and undamaged. A mechanically defective connector makes Low Power Level readings unstable; the analyzer trace jumps around when the connector is touched or moved.

The HP 85025C input connector is an SMA male type. This connector should mate directly with most detector output connectors; for best performance, the detector adapter should be connected directly to the detector. If, however, the detector adapter is used (see Table 2), but you must be aware that several factors can affect the performance of your instrument:

Mating Connector

Use the furnished coded cable clips (cable marker kit) to identify leads when you use two or more detector adapters. Place matching clips on both ends of the same detector cable.

Detector Lead Identification

Power for the detector adapter is supplied by the HP 8757A scalar network analyzer. Each detector requires approximately 0.5 watt.

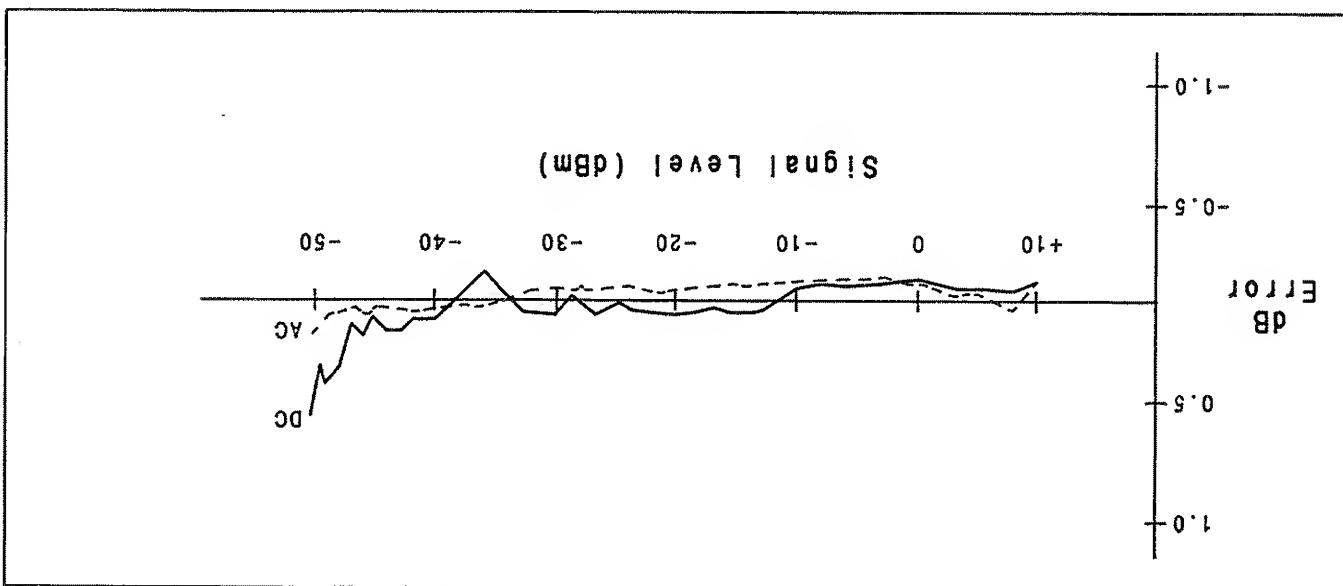
Power Requirements

The detector adapter is susceptible to damage from static discharge.

Caution

PREPARATION FOR USE

Figure 2. Example of HP 85025C Performance with an HP U422A Detector



Provide protection from temperature extremes. Condensation may occur within the instrument if it is exposed to temperature extremes or to higher humidity levels.

Altitude: Up to 7,620m (25,000 ft).

Humidity: Up to 95%.

Temperature: 0° to +55°C

Limits: The HP 85025C detector adapter operates within the following environmental limits:

OPERATING ENVIRONMENT

3. Connect the RF input by turning the male connector OUTER shell clockwise.
2. Insert the multi-pin connector in the analyzer by turning the OUTER shell 85025C connector is keyed; insert the plug with the key downward. The HP 85025C connector is keyed; insert the plug with the key downward.
1. Connect the detector adapter to the detector by turning the male connector OUTER shell clockwise.

Connect the detector adapter to the HP 8757A as follows:

Connecting the HP 85025C

CONNECTOR TYPE	CONNECTOR MFR.	PART NUMBER
SMA female	None Required	
BNC male	Sealectra Omni Spectra 050-674-6800-89	3282-2240-00
SMC male	Omni Spectra 5082-2240-00	

Table 2. Adapters

a. Cause errors in DC mode at Low power levels, due to loss through the cable.

b. Slow the AC response of the diode detector, due to capacitance in the cable.

* Putting a length of coaxial cable between the detector and the HP 85025C can:

When making inquiries, either by correspondence or by telephone, please refer to the instrument by model number and full serial number.

5. Any other information that may expedite service.

4. The type of service required.

3. The complete model and serial number of the instrument.

2. The technical contact person within your company, and their complete phone number.

1. Your company name and address.

Please include the following information:

If you ship the instrument to a Hewlett-Packard office or service center,

Returning Instrument for Service

5. Mark the shipping container **FRAGILE**.

4. Seal the shipping container securely.

3. Use shock-absorbing material, a 76 to 102 mm (3 to 4 in) layer, around all sides of the instrument to provide a firm cushion and to prevent movement inside the container.

2. Use a strong shipping container. A double-wall carton made of 159-kg (350-lb) test material is adequate.

1. Wrap the instrument in heavy paper.

Instructions:

Container and materials identical to those used in factory packing are available through your Hewlett-Packard office. If, however, you choose to package the instrument with commercially available materials, follow these instructions:

Provide protection from temperature extremes, which can cause condensation within the instrument.

Altitude: Up to 7,620m (25,000 ft).

Humidity: Up to 95%.

Temperature: -25° to +75°C

Timits: The instrument may be stored or shipped in environments within the following

STORAGE AND SHIPMENT

On the title page of this manual is a manual part number and a microfiche part number. Both can be used to order extra copies of this manual.

Microfiche are 10 X 15 cm (4 X 6 in) microfilm transparencies. Each microfiche contains reduced photocopies of the manual pages. Also included in the microfiche package are the latest manual changes supplement and pertinent service notes.

The manual part number also appears on the back cover, in the lower left hand corner.

ORDERING MANUAL/MICROFICHE

INSTRUMENT	Critical Specifications	Recommended Model	Use*
Network Analyzer	HP 8750C AC/DC compatible with rev. 2.0	85025C AC/DC compatible with 8750B firmware	0,A,S
RF Source	8750A compatible with RF plug-in	HP 8350B	0,A
OSCilloscope	Bandwidth: DC to 28 kHz	HP 1740A	S
Digital Voltmeter	Accuracy: $\pm 0.01\%$ Input Impedance $\geq 10M$ ohms	HP 3456A	A,S
DC Power Supply	Accuracy: $\pm 0.3\%$	HP 6212B	A,S
Step Attenuator	0 to 70 dB in 10 dB steps	HP 8495A	0,0
Detector	Low Barrier (Zero Bias)	HP 8470B	0,0
Phillips Screwdriver	Size 0 Point	HP 8710-0978	S
Wrench	1/2 x 7/16 inch hex nut	HP 8720-0009	S
Adjustment Tool	Fits adjustment potentiometers	HP 8710-1300	A
Short		HP 0960-0054	A

Table 3. Recommended Test Equipment

OPERATION

C A U T I O N

The HP 85025C detector adapter is susceptible to electrostatic discharge (ESD) as low as 5,000 Volts. ESD can reach 20,000 Volts or more before you even notice it.

Materials conductive to static build-up include carpeiting, nylon, dry air, paper adhesive tape, styrofoam and vinyl.

The best method of preventing ESD is to wear a grounding strap connected to a conductive bench mat that provides a path to ground of between 1 and 2.5M ohms. After naturally, you can ground yourself by touching any grounded instrument before touching the detector connector.

Whenever possible, turn the source and the HP 8757A off when connecting or disconnecting a cable to the detector, the detector to the detector adapter, or the HP 85025C to the scalar network analyzer.

As an extra precaution, discharge both the cable and the detector adapter by grounding the center conductor of each detector to its outer conductor before connecting either one to the detector.

NEVER touch the detector or the HP 85025C center contacts.

INTRODUCTION

This section contains information concerning the operation of the HP 85025C detector adapter.

FEATURES

Figure 1 details the features of the HP 85025C.

OPERATING PRECAUTIONS

Ensure that your HP 8757A firmware is revision 2.0 or greater.

Read and observe all CAUTIONS.

Tighten the HP 85025C connectors with fingers only.

DO NOT use a wrench unless it is a torque wrench set at 9.2 cm/kg (8 in/lb).

A procedure for verifying the operating adapter is included in this manual under the heading OPERATOR'S CHECK. The operator's check provides reasonable assurance that the scalar network analyzer, detector, and the HP 85025C detector adapter are functioning properly. This procedure should meet the needs of an incoming inspection.

OPERATOR'S CHECK

Before you connect a cable to the diode detector, always short the cable's center conductor to instrument ground.

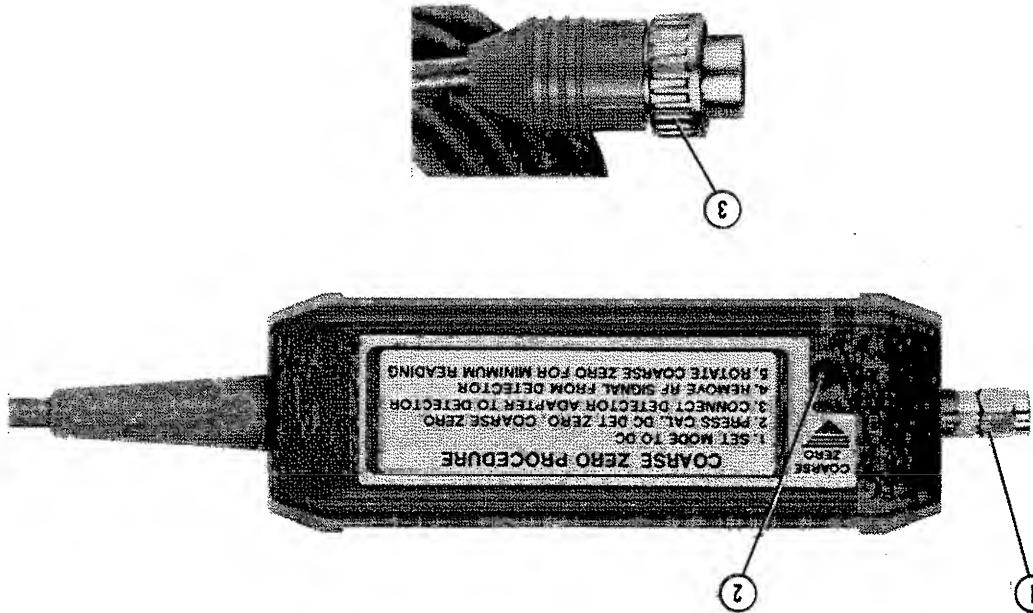
Do NOT apply more than ± 10 volts DC or 10 volts peak-to-peak to the HP 85025C, or electrical damage can occur.

Do NOT apply more than 9.2 cm/kg (8 in/lb) of torque when tightening the connectors. Greater surface torque may deform the mating surface.

C A U T I O N

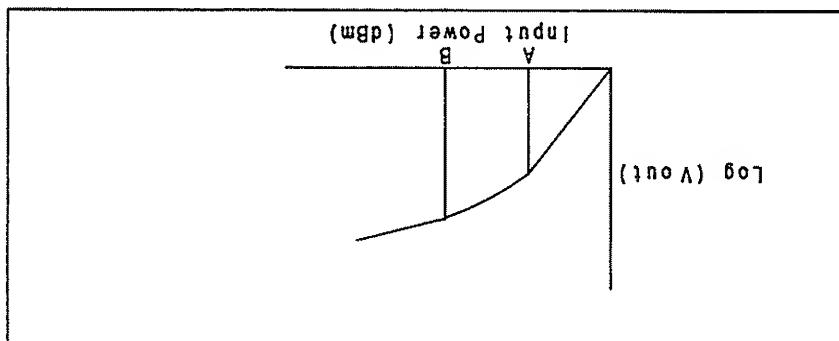
Figure 1. HP 85025C Features

1. RF INPUT CONNECTOR. This connector (SMA male) accepts the RF signal from the diode detector.
2. COARSE DC ZERO. This adjustment compensates for any large offset voltage.
3. MULTI-PIN CONNECTOR. This connector supplies the necessary DC voltage for the operation of the HP 85025C, and feeds the detector adapter output signal to the scalar network analyzer.



This is a general description of diode detector response. The exact values of A and B are determined by the diode detector you use.

Figure 2. Response of a Typical Diode Detector



voltage.

When an input signal is above B dBm, the diode is operating in the linear region. In this region, the output voltage is proportional to the input voltage.

When an input signal is between A and B dBm, the diode is operating in the transition region. As the name implies, this region provides a smooth transition between the other two regions.

Diode detectors have three separate types (regions) of response to an input signal (see Figure 2). Using Figure 2, when an input signal is below A dBm, the diode is operating in the Square Law region. In this region, the output voltage is proportional to the square of the input voltage.

In the DC mode, no modulation is required. The detector diode converts the RF signal to an equivalent DC voltage that the HP 85025C detector adapter chops at a 27.778 kHz rate. This chopped signal is amplified, and passed to the analyzer.

In AC detection, an RF or microwave signal is amplitude modulated with a 27.778 kHz squarewave. The detector used with the HP 85025C demodulates the envelope (detector) signal to produce a 27.778 kHz squarewave whose peak-to-peak voltage corresponds to the RF signal at the detector adapter.

In either AC or DC detection mode, the detector adapter provides a 27.778 kHz squarewave signal for the analyzer to interpret and display.

The HP 85025C adapts the output of a diode detector whose input is either an unmodulated RF signal (DC mode) or a squarewave amplitude modulated RF signal (AC mode) so that it can be displayed on the HP 8757A scalar network analyzer.

Detector Adapter

OPERATING THEORY

Figure 4. HP 85025C/8757A Typical Waveguide Measurement Setup

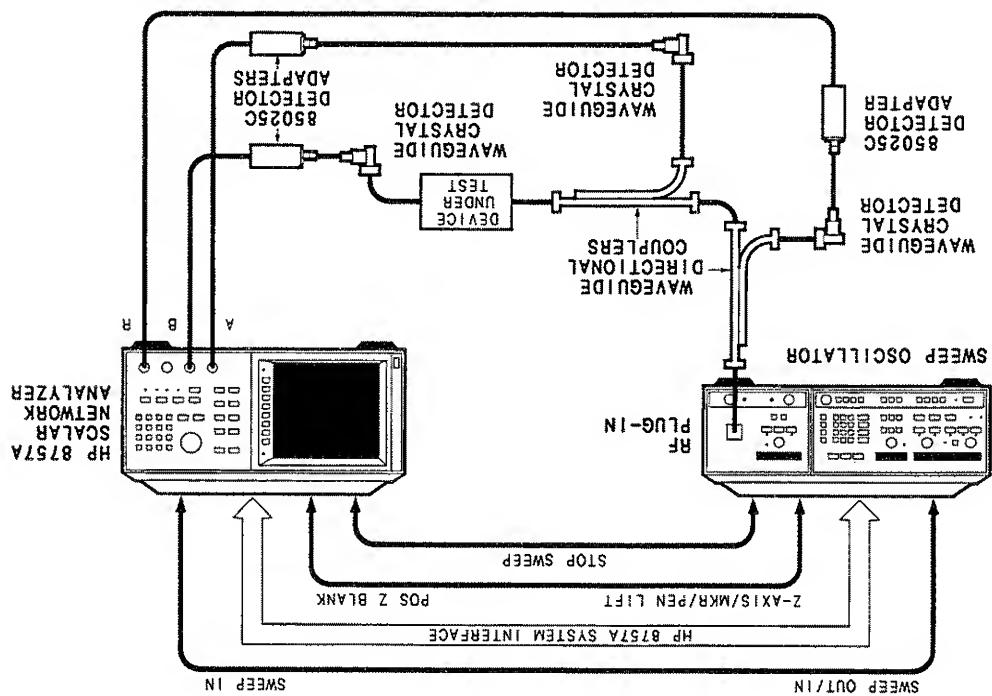
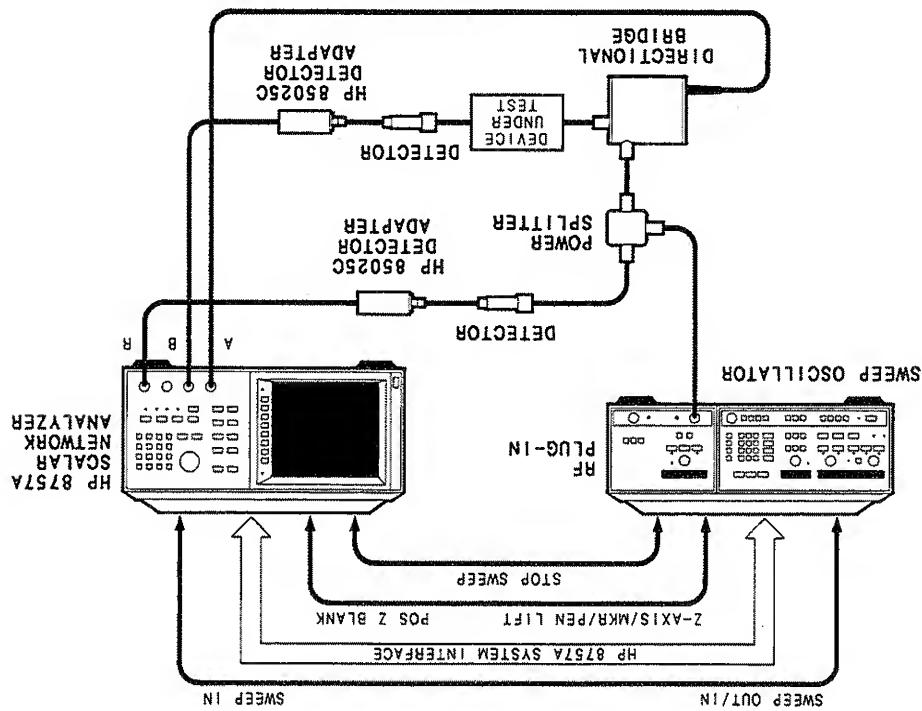


Figure 3. HP 85025C/8757A Typical Coaxial Measurement Setup



MEASUREMENT SYSTEM CONFIGURATION

DETECTION MODES

HP 85025C Operation

With the HP 8757A and 85025C, you must pay special attention to system configuration. The RESET state of the analyzer is AC mode; you do not need to do anything special to make an AC measurement. To enable DC mode operation, however, you must perform the proper analyzer keystroke sequence.

Note: To make DC mode measurements with the measurement set up shown in Figure 3, you must use a directional bridge capable of both AC and DC detection (HP 85027A/B/C).

Because the HP 8505C is used with an external (separate) detector, whether you select AC or DC detection, you should perform a firmware based measurement calibration procedure. This procedure (External Detector Measurement Calibration) adapts the analyzer's dynamic range to each detector/detector adapter. You should perform this procedure whenever you connect a detector/detector adapter to a different input than the one on which it was calibrated, or if you change either the detector or the detector adapter.

You do not have to set AC detection on the analyzer unless DC mode was used in the previous measurement (even if the HP 8757A is turned off, it remembers the measurement mode). If the last measurement was in DC mode, press [SYSTEM] and select [MODE AC/DC] to turn AC mode on (AC Lights). You can also press [RESET] to set the AC detection mode; AC detection is automatically set when the analyzer presets.

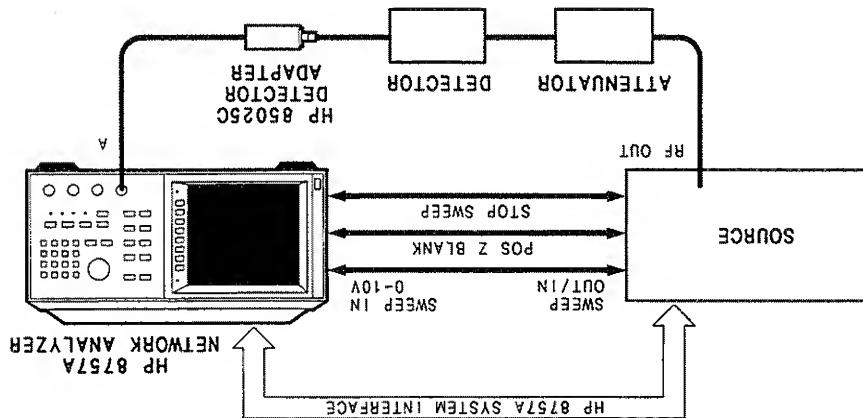
AC Detection Mode

DC detection offers greater power measurement accuracy and ability to characterize oscillators and modulation sensitive devices. To use DC detection, you must first set the DC measurement mode on the HP 8757A. There is also a zeroing operation in DC mode that compensates for the effects of DC drift and temperature fluctuations.

DC Detection Mode

For the majority of measurements, AC detection is the preferred method. It offers greater sensitivity and immunity to noise and drift with time and temperature. AC detection measurements using the HP 85025C detector adapter and the HP 8757A scalar network analyzer require a modulator envelope. This envelope is provided through a 27.778 kHz squarewave amplitude modulator of the RF test signal. Test set connections depend on the source; figures 2 and 3 illustrate typical measurement set-ups.

Figure 5. External Detector Measurement Calibration Set Up



The External Detector Measurement Calibration requires that you measure two different Power Levels (HI and LO) and that you enter the exact values of the examples. The Power Levels you choose depend on the response of your diode detector, and the output power of your source.

The External Detector Measurement Calibration requires that you measure two different Power Levels (HI and LO) and that you enter the exact values of the examples. The Power Level should be in its square law region. The LO Power Level should be in the diode detector's linear region, and the HI Power Level should be via the analyzer keypad. For best results, the HI Power Level should be in the diode detector's linear region of operation, and the LO Power Level should be in its square law region.

The response of output voltage versus input power (see Diode Detector under OPERATING THEORY) is described by a general equation within the HP 8757A. To adapt this equation to describe your particular detector, the analyzer uses data measured at two points on the detector's response.

Because you use an external (separate) detector with the HP 85025C, you must perform the firmware based measurement calibration procedure to accurately characterize the diode detector's dynamic response.

External Detector Measurement Calibration

Before you make measurements with the HP 85025C detector adapter, there are several steps to perform, depending on the measurement mode that you use. In either AC or DC mode, you should perform an external detector measurement calibration the first time that you use a detector/detector adapter on a given measurement. There are no further pre-measurement steps for subsequent analyzer input. There are no further pre-measurement steps for subsequent measurements in AC mode. In DC mode, however, you should periodically perform the zeroing function.

PRE-MEASUREMENT STEPS

The analyzer performs the external detector measurement calibration and reference (on the detector/detector adapter, if possible).

13. Enter the power level incident on the detector (e.g. -24 dBm).

12. Set the attenuator so that the power to the detector is in the square law region, and less than -20 dBm (e.g. 30 dB of attenuation).

11. Enter the power level incident on the detector (e.g. 6 dBm).

On the HP 8757A:

10. Set the power to a level in the detector's square law region greater than -10 dBm (e.g. +6 dBm). For best accuracy, use a power meter to set the power level.

9. Select a CW frequency within the detector's range.

On the source:

8. Select [CONT]. The analyzer displays ENTER POWER (HI).

On the HP 8757A:

7. Adjust COARSE ZERO (A1R23) for a minimum signal on the analyzer.

On the HP 85025C:

If you are using DC detection, the analyzer displays Adjust COARSE ZERO for minimum response.

If you are using AC detection, the analyzer displays ENTER POWER (HI). Go to Step 9.

6. Select [DET A], or the appropriate input.

5. Select [DET PWR CAL].

4. Press [CAL]. Select [MORE] then [EXT DET CAL].

NOTE: A measurement calibration in one mode is not valid for the other (see AC vs DC Measurement Calibration below).

3. If you will be using DC detection, press [SYSTEM] and select [MODE AC/DC]. If you will be using AC detection, continue with Step 4.

2. Press [RESET].

On the HP 8757A:

1. Connect the equipment as shown in Figure 5. Allow 30 minutes warm up.

Uncalibrated Operation. When you are making relative measurements at low power levels (in the diode detector's square law region), you don't have to perform a measurement calibration. The analyzer has a default calibration value that describes the response of a typical detector/detector adapter (see Figure 6).

Only one measurement calibration value is stored at one time for each input; the analyzer does not keep separate AC and DC calibration values.

* Use the default calibration value that is stored in the analyzer (see Uncalibrated Operation below).

Enter the value you wish stored for that input and press [ENT]. The analyzer displays DET A CAL VAL and the new value.

* Enter a known calibration value manually: press [CAL], [MORE], [EXT DET CAL], [CAL VALUE], [DET A] (or the appropriate input). The analyzer displays DET A CAL VAL and the value stored for that input.

* Perform an external detector measurement calibration with a new detector/detector adapter. The new calibration value replaces the original.

Changing a Stored Measurement Calibration. When you perform the measurement calibration procedure, the analyzer stores the calibration value in any of three ways:

A detector that responds more slowly, however, produces an output signal that is smaller in amplitude than in DC. Because the signal amplitude is not the same in both measurement modes, a power calibration done in one is not valid in the other.

A detector that responds very quickly produces an output signal that has the same amplitude in either AC or DC mode.

The difference between an AC and a DC mode measurement calibration depends on the detector you use. All detectors do not respond the same to a given input signal: some respond very quickly, while others respond more slowly.

AC vs DC Measurement Calibration. A measurement calibration performed in one measurement mode may not be valid in the other mode. For the best measurement accuracy, perform a measurement calibration in the mode you will be using.

You can bypass the measurement calibration procedure if you select the software [CAL VALUE] rather than [DET PWR CAL] in the measurement calibration sequence, and enter the known value for your detector/detector adapter.

The displayed value is retained by the analyzer as long as an HP 85025 is connected to that input. If another detector/detector adapter is connected to the same input, the analyzer uses the first measurement calibration value until you perform a new measurement calibration.

If you change the detector or the detector adapter, you must perform a new measurement calibration.

For higher power levels, the accuracy of the displayed signal level depends on the diode detector used.

As you increase the attenuation, the analyzer continues to accurately indicate the amount of attenuation. The accuracy will degrade as the input signal level approaches the detector's noise floor.

4. Add 10 dB of attenuation to the input signal.

3. Press [DISPLAY], [MEAS->MEM], [MEAS-MEM].

On the HP 8757A:

2. Connect the detector/detector adapter to a signal below -15 dBm.

1. Connect the detector/detector adapter to the HP 8757A and set the analyzer default calibration value.

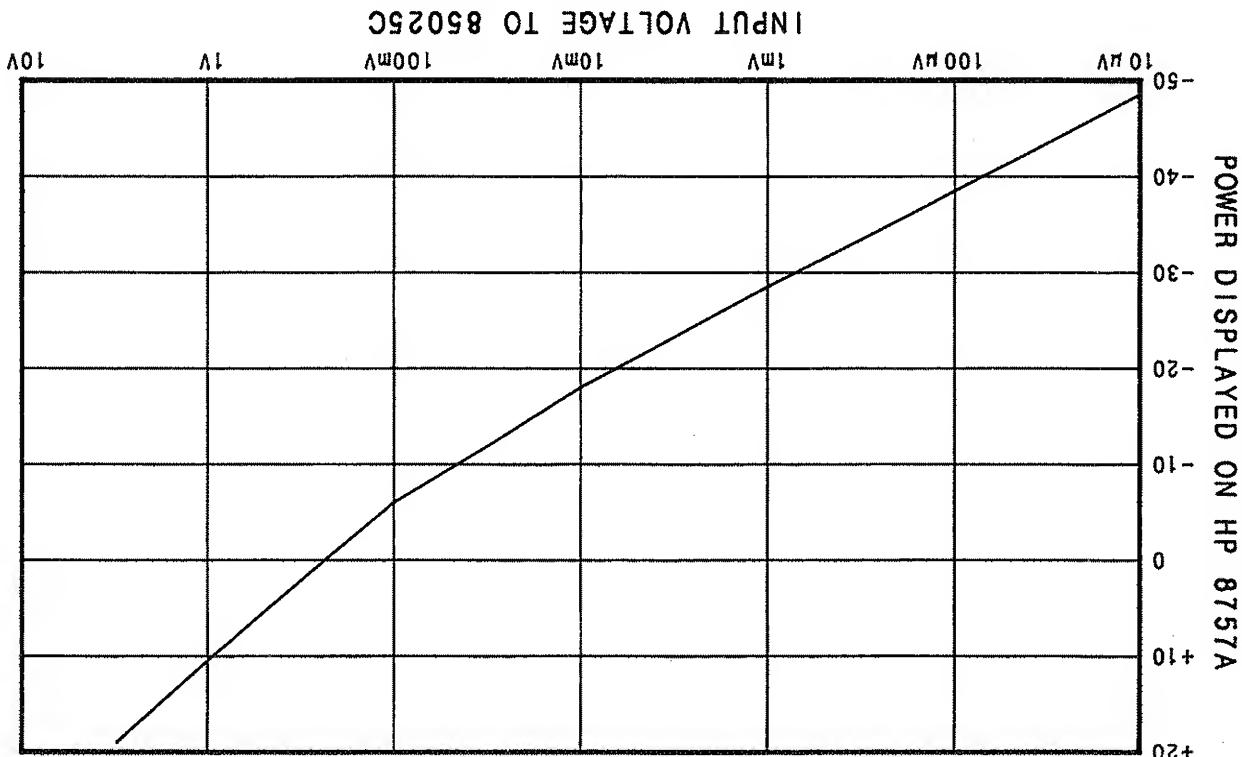
Example for a diode detector with a square law region below -15 dBm:

The analyzer displays DET A CAL VAL and the stored default value.

Press [CAL], [MORE], [EXT DET CAL], [CAL VALUE], [DET A] (or the appropriate input) [RESET CAL VAL].

To set the default value:

Figure 6. Default Response Curve



for 30 minutes.

2. Turn the analyzer on and press [PRESSET]. Allow the instruments to warm up

On the HP 8757A:

1. Connect the detector/detector adapter to the analyzer.

Coarse Zero:

Zeroing the HP 85025C consists of two parts: Coarse Zero, which compensates for any small drift in the offset voltage; and Autzero, which compensates for any small

When you make DC mode measurements, it is important that you perform a zeroing operation to compensate for the effects of DC drift and temperature fluctuations (this is not required for AC detection). The zeroing operation also establishes the displayed noise level (noise floor of the system) cause amplitude measurement errors at Low (-40 dBm and below) power levels. Eliminates small DC voltages from the diode detector that would otherwise drift no RF signal applied.

Zeroing

If you remove and/or exchange a detector adapter, you must reconfigure the system, using either [PRESSET] or the softkey [CONFIG SYSTEM], so that the correction factors match the port and the device.

You can have the analyzer read the inputs without using [PRESSET]: Press [CAL] and select the softkey [CONFIG SYSTEM].

Selecting DC mode with the softkey [MODE AC/DC] turns off the squarewave modulation on the source (HP 8350B, 8340A or 8341A).

3. To turn on DC mode, press [SYSTEM] and select the softkey [MODE AC/DC]. AC dims and DC lights up.

* The HP 8757A DC mode softkeys are enabled. You can access [DC DET ZERO] (in the CAL menu) and [MODE AC/DC] (in the SYSTEM menu).

* The analyzer reads each input port and identifies the detector or detector adapter connected to it (AC/DC or AC only).

During preset:

2. Press [PRESSET].

On the HP 8757A:

1. Connect the detector/detector adapter to the HP 8757A.

The ability to make DC measurements and the softkeys specific to DC mode are not automatically accessible. The HP 8757A must acknowledge the presence of an AC/DC detector adapter.

DC Detection

Refer to the *HP 8757A Operating Manual* for detailed information on softkeys.

NOTE: If the operating environment changes significantly, you should repeat the zeroing operation.

NOTE: For optimum performance, the outer conductor of the source RF output connector must be electrically connected to the outer conductor of the detector adapter input.

NOTE: If a device under test generates RF signals or noise, Autzero is not valid. Devices that can generate RF signal applied. If you are testing such mixers with the local oscillator signal applied. If you are testing such devices, use Manual Zero.

NOTE: [MANUAL], is similar to zeroing a power meter. First, remove the Manual Zero, [MANUAL] to perform the zeroing.

Repeat Autzero, [REPT AZ ON/OFF], periodically repeats the Autzero.

If the error voltage is too large for Autzero to compensate for, the analyzer displays the message WARNING: DC DET ZERO failed on X. If this happens, you must adjust coarse Zero to bring the error voltage within Autzero range.

8. After adjusting Coarse Zero, press the softkey [CONT]. The analyzer performs an Autzero.

On the HP 8757A:

Autzero:

7. Adjust Coarse DC Zero (AIR23) for a minimum signal on the analyzer.

On the HP 85025C:

minimum response.

6. Select the softkey that corresponds to the detector adapter that you wish to zero (e.g. [DET A]). The analyzer displays COARSE ZERO for

5. Select [COARSE ZERO].

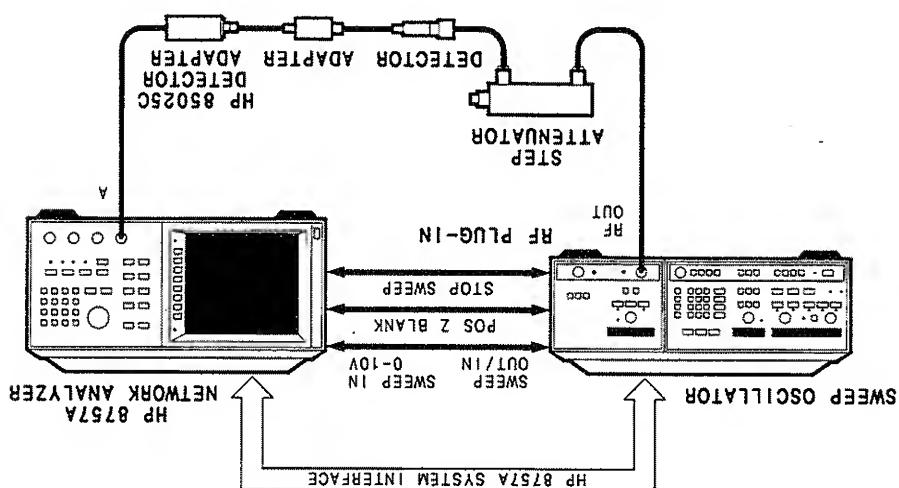
4. Press [CAL] and select the softkey [DC DET ZERO].

3. Press [SYSTEM] and select the softkey [MODE AC/DC] to turn DC mode on.

Network Analyzer HP 8757A
 Source HP 8350B with RF Plug-in
 Step Attenuator HP 8495/96
 Detector HP 8470B
 Adapter (BNC to SMA) Omni Spectra P/N 3282-2240-00
 Adjustment Tool HP 8710-1300

EQUIPMENT

Figure 1. Equipment Set Up.



The two procedures in this section test the noise floor and dynamic accuracy of the HP 85025C detector adapter in both AC and DC modes. The required equipment and test set up are identical for both tests. Each test may be performed without access to the interior of the detector adapter.

INTRODUCTION

OPERATOR'S CHECK

12. Set the source output power level to +6 dBm. On sources which do not have +6dBm capability, use the highest power level available.

11. Select a CW frequency within the detector's range.

On the source:

10. Press [CONT].

On the HP 8757A:

9. Adjust COURSE DC ZERO so that the minimum power level (noise floor) is displayed on the HP 8757A.

On the HP 85025C:

8. Set the step attenuator to its highest attenuation.

7. Turn RF power off.

On the source:

In AC mode, go to step 11.

6. Select the [DET A] softkey.

Select [MORE], [EXT DET CAL], [DET PWR CAL]

5. Press [CAL].

Right up.

4. For DC operation, select the softkey [AC/DC] in the system menu. DC will

3. Press [SYSTEM].

2. Press [INSTR PRESET].

On the HP 8757A:

1. Connect the equipment as shown in Figure 1. Allow the equipment to warm up for 30 minutes.

Procedure

This test can be performed in both AC and DC modes.

Noise floor is the power level indicated on the HP 8757A with no signal present at the detector input. Because this value is dependent on the detector used in the test set up, this test is recommended as a general check of adapter operation. The detector used in this procedure should be the same as the one used in actual day to day operation.

Description

NOISE FLOOR MEASUREMENT

13. Set the step attenuator to 0 dB.

14. At the ENTER POWER (HI) prompt, press [6] [dBm] or enter the highest power level that was attained.

15. Set the step attenuator to 30 dB.

On the HP 8757A:

16. At the ENTER POWER (LO) prompt, press [-] [2] [4] [dBm] or enter the original power level less 30 dB attenuation.

17. Turn RF power off.

18. Set the step attenuator to its highest attenuation.

19. The power level displayed on the analyzer is the noise floor of the system. This value should always be less than -45 dBm in AC mode, -40 dBm in DC mode. If your results are not within this range, refer to TROUBLESHOOTING in the service section of this manual.

The noise floor measurement is now complete.

DYNAMIC ACCURACY PROCEDURE

Description

DYNAMIC ACCURACY PROCEDURE

This test can be performed in both AC and DC modes.

1. Perform the NOISE FLOOR MEASUREMENT if you have not done so.

On the source:

2. Select a CW frequency within the detector's range at +10 dBm output power.

On sources which do not have +10 dBm output power capability, use the highest power level available.

On the HP 8757A:

3. Press:

[DISPLAY] [MEAS --> MEM] [MEAS - MEM] [CURSOR]

This should result in a 0 dB reading.

4. Using the step attenuator, attenuate the signal 10 dB. Note the deviation of the analyzer reading from the step attenuator.

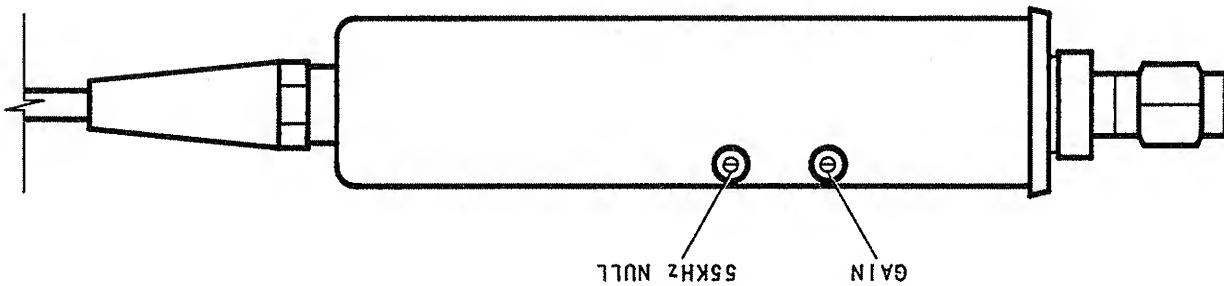
5. Repeat step 4 until the signal is attenuated 50 dB or when the detector input power reaches -40 dBm, whichever comes first. At each step, the deviation should never be greater than 2 dB. If your results are not within this range, refer to TROUBLESHOOTING in the service section of this manual.

The dynamic accuracy procedure is now complete.

Network Analyzer	HP 8757A	DC Power Supply	HP 6212B	Digital Voltmeter (DVM)	HP 3456A	SwEEP OscillAtor	HP 8350B with RF Plug-in	Adjustment Tool	HP 8710-1300	Short	HP 0960-0054
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EQUIPMENT

Figure 1. Detector Adapter Adjustment Access Points



You must remove the detector adapter's plastic outer shell to perform both adjustments; the adjustment potentiometers are then accessible without removing the inner metal sleeve. If these adjustments are unsuccessful in correcting a problem, refer to TROUBLESHOOTING in the service section of this manual.

Perform both adjustments only after you have performed the connector inspection in the service section, and if the values found in the operator's instruction manual are not within an acceptable range.

There are two adjustments in the HP 85025C; 1. The gain adjustment 2. The 55 kHz null adjustment.

There are two adjustments in the HP 85025C:

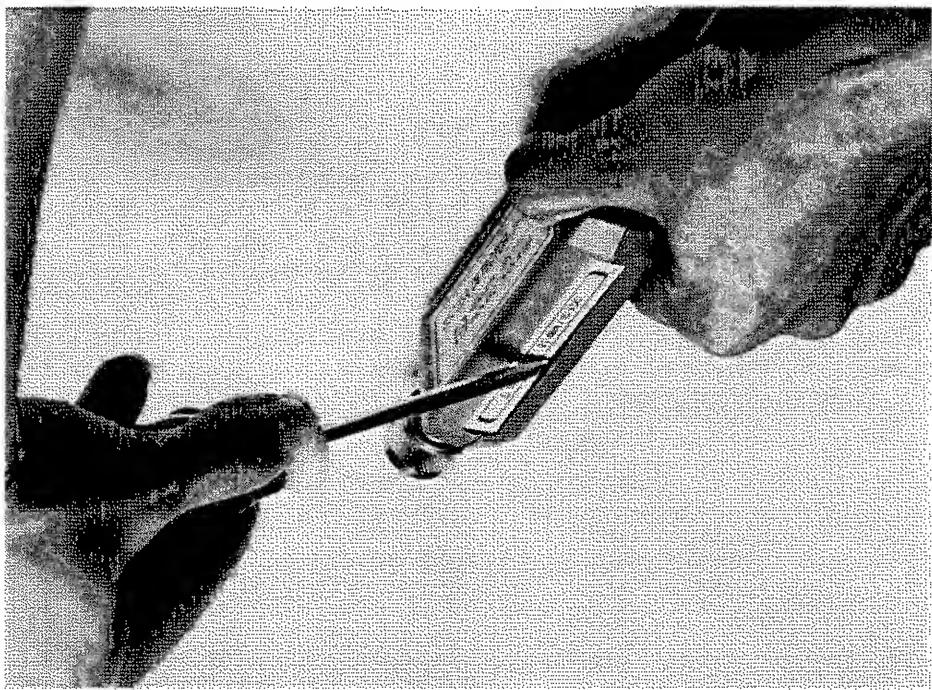
INTRODUCTION

ADJUSTMENTS

1. Place the detector adapter so its narrow side is on a flat surface. Position it so that the RF connector is facing away from you. Refer to Figure 2.
2. Hold the sides of the detector adapter near the cable end.
3. At an angle, carefully insert the tip of a flat-head screwdriver into the seam of the cover assembly until it slips under the seam. Be sure your hand is not in the path of the screwdriver.
4. Turn the screwdriver to snap apart the cover assembly.
5. Turn the detector adapter over and repeat steps 3 and 4.
6. The cover assembly may be pulled apart to expose the metal housing.

WARNING

Figure 2. Cover Removal.



COVER REMOVAL PROCEDURE

6. Select the softkey [AC/DC] in the system menu. DC lights up.

5. Press [SYSTEM].

4. Press [INSTR PRESET].

On the HP 8757A:

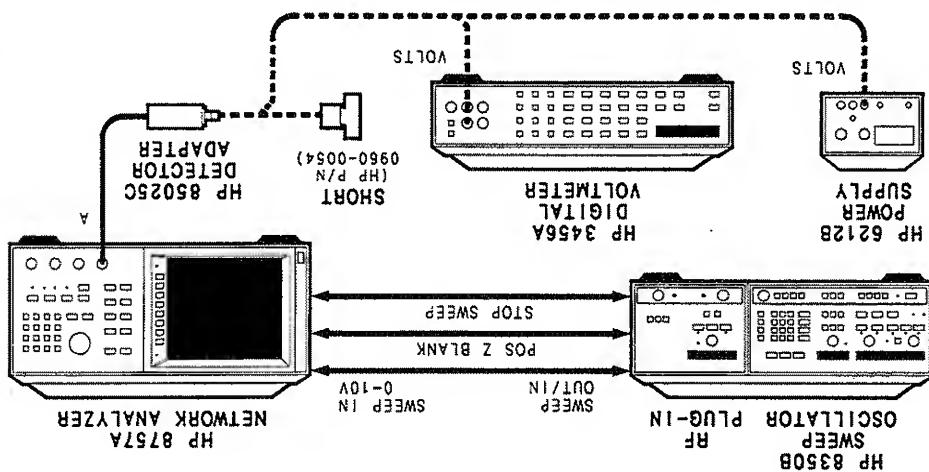
3. Set the DC power supply to $1.000 \pm .003V$.

2. Connect the equipment as shown in Figure 3, with the DC power supply connected to the digital voltmeter (DVM). Allow the equipment to warm up for 30 minutes.

1. Remove the plastic cover from the detector adapter using the COVER REMOVAL PROCEDURE that precedes this adjustment.

Procedure

Figure 3. Adjustment Procedure Set Up.



The first adjustment in this procedure ensures that the 55 kHz signal generated internal to the HP 85025C does not appear at the detector adapter's output. With the input of the HP 85025C shorted, the 55 kHz null potentiometer is adjusted until the noise floor is at its highest point.

In the adjustment, the gain of the internal amplifier is adjusted to ensure a consistent relationship between voltage and power displayed. With 1.00V at the input of the detector adapter, the gain potentiometer is adjusted until the HP 8757A displays a 10.50 dBm power level.

Description

ADJUSTMENT PROCEDURE

7. Press [CAL] and select [MORE].
8. Select:
- [EXT DET CAL]
[DET A]
[CAL VALUE]
[RESET CAL VAL].
- On the HP 8757A:
9. Connect a short to the input of the HP 85025C.
10. Press [CAL].
11. Select the softkeys [DC DET ZERO], [COARSE ZERO], and then [DET A] in the cal menu.
12. Adjust COARSE DC ZERO so that the minimum power level (noise floor) is displayed on the HP 8757A.
13. Select [CONT].
- 55 KHz Null Adjustment
14. Select [AUTZERO] in the cal menu.
- On the HP 85025C:
15. Adjust the 55 KHz null potentiometer (shown in Figure 1) until the signal level (noise floor) reaches its highest point.
16. Repeat steps 14 and 15 until there is no noticeable change in signal level after step 15.
17. Remove the short from the input of the detector adapter.
18. Connect the DC power supply to the input of the HP 85025C.
19. Press [CURSOR].
- On the HP 8757A:
20. Adjust the gain potentiometer (shown in Figure 1) until a $10.50 \pm .05$ dBm power level is displayed on the HP 8757A.
- The detector adapter is now adjusted.

in AC mode, the signal is modulated at 27.8 kHz at the source. The detector's output, therefore, is the modulated square wave required by the analyzer. In this case, the adapter acts as a buffer between the detector and the analyzer.

In DC mode, the detector's output is a constant voltage proportional to the power of the input signal. The 85025C chops and amplifies this voltage creating a 27.8 kHz square wave for input to the analyzer.

The 85025C detector adapter accepts RF or microwave signals that are either 27.8 kHz modulated (AC mode) or unmodulated (DC mode). In either detection mode, the detector adapter provides a 27.8 kHz square wave signal for the analyzer to interpret and display.

THEORY OF OPERATION

Any servicing, maintenance, or repair of this product must be performed by qualified personnel only.

WARNING

Begin troubleshooting the detector adapter by performing the OPERATOR'S CHECK provided in this manual. If the results of this check are not within the specified range, refer to ADJUSTMENTS. If the problem persists, consult TROUBLESHOOTING PROCEDURES in this section.

This section provides information concerning the troubleshooting and repair of the HP 85025C detector adapter.

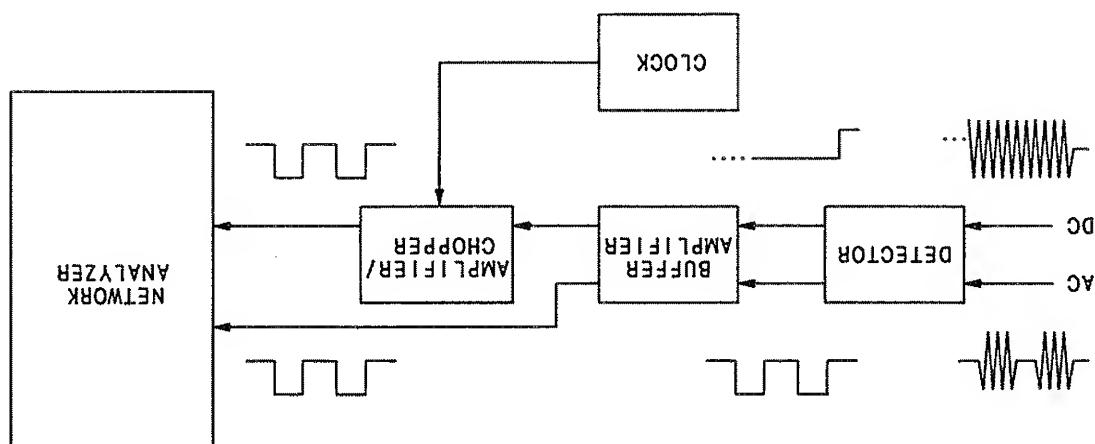
INTRODUCTION

SERVICE

Network Analyzer	HP 8757A	Network Analyzer	HP 8757A
Digital Voltmeter	HP 3456A	Digital Voltmeter	HP 3456A
DC Power Supply	HP 6212B	DC Power Supply	HP 6212B
Phillips Screwdriver	HP 8710-0978	Phillips Screwdriver	HP 8710-0978
7/16 Inch Hex Nut Wrench	HP 8720-0009	7/16 Inch Hex Nut Wrench	HP 8720-0009
Oscilloscope	HP 1740A	Oscilloscope	HP 1740A

EQUIPMENT

Figure 1. Overall Block Diagram



When you inspect connectors, use an illuminated, 4-power magnifying glass. The exact power is not critical, but the lighting is very important. Normal room lighting, especially indirect desk lamp lighting, casts shadows that can mask small defects you are trying to expose. A magnifying glass with integral lighting provides shadowless illumination; this type of magnifying glass is readily available from general equipment suppliers.

Periodically inspect all connectors; a bad connector can damage a good one on the first connection. If a connector fails the inspection, replace it.

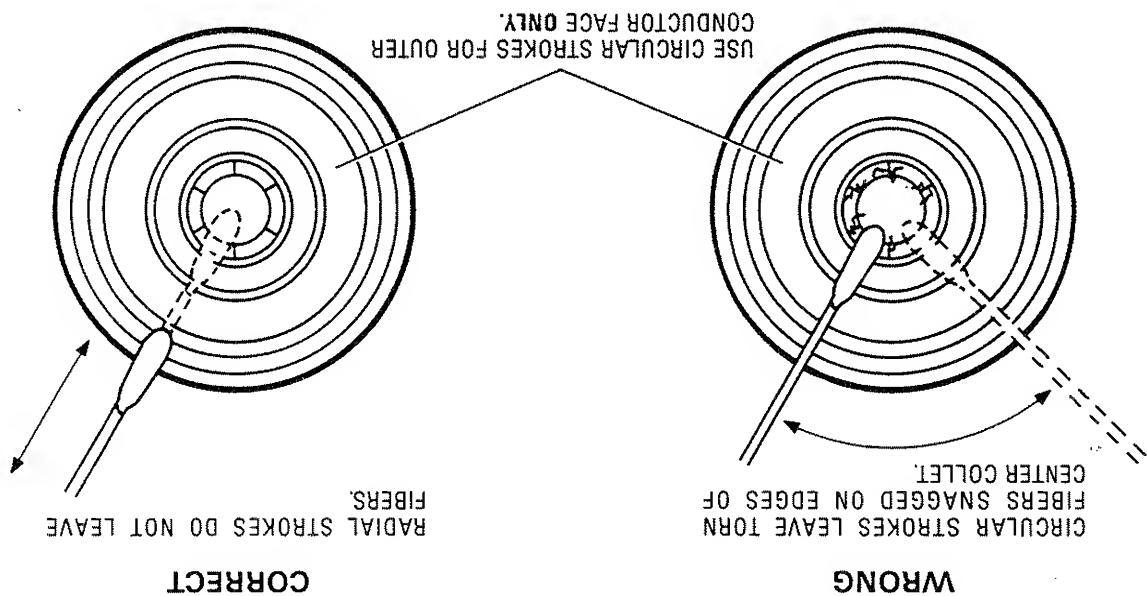
When you inspect connectors, use an illuminated, 4-power magnifying glass. The exact power is not critical, but the lighting is very important. Normal room lighting, especially indirect desk lamp lighting, casts shadows that can mask small defects you are trying to expose. A magnifying glass with integral lighting, especially shadowless illumination; this type of magnifying glass is readily available from general equipment suppliers.

Examine connectors for obvious problems such as deformed or clogged threads, contamination, or corrosion. On the contact surfaces, look for burrs, scratches, rounded shoulders, or other signs of wear or damage. Defects that you can see with the magnifying glass can degrade performance. Replace defective connectors.

If a connector is dirty, refer to Figure 2 for cleaning suggestions. First, try blowing the dirt off with compressed air. Carefully, brush or wipe any remaining dirt from the surface. Use trichloroethylene (liquid Freon) sparingly as a cleaning solvent, if required. Do not use abrasives or other solvents that could damage the thin metal plating or the plastic dielectric supporting element.

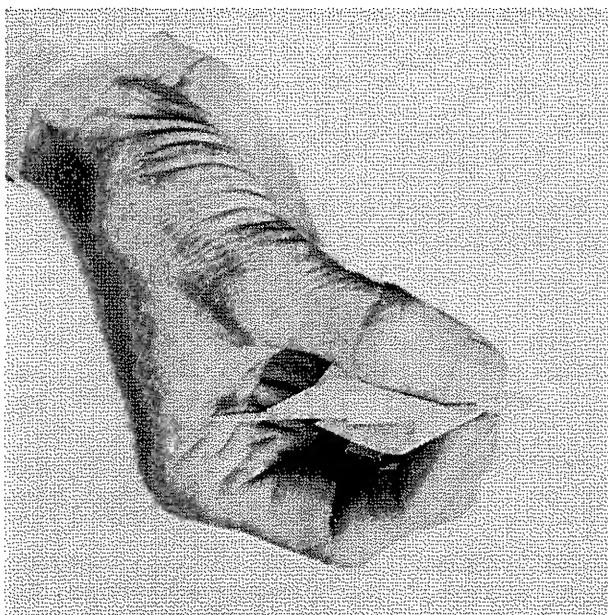
CONNECTOR INSPECTION

Figure 2. Cleaning Connectors.



WRAP THIN FOAM OR A LINT-FREE CLOTH AROUND A SLENDER WOODEN ROD (SUCH AS A TOOTHPICK) FOR CLEANING AREAS THAT ARE TOO SMALL FOR THE SWABS. TRY TO CLEAN THE CONNECTOR WITH COMPRESSED AIR BEFORE RESORTING TO SWABS.

NOTE



c. If there are any discontinuities, replace the cable by following the instructions in Power Cable Replacement.

b. Use the DVM to check for possible shorts between the connector pins and ground (frame).

Signal	Conductor (Label)	Connector Pin	Conductor (Label)
Output Control	White (W)	1	White (W)
Return	Green (G)	2	Yellow (Y)
Control	Blue (B)	3	Green (G)
+12.6V	Red (R)	4	Blue (B)
+1.5V		5	

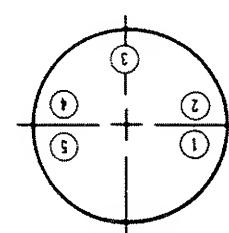


Table 1. Power Cable Conductors.

a. Use a digital voltmeter (DVM) to check the continuity of the power cable conductors from the connector pins to the wire connections inside the detector adapter housing. Table 1 lists the cable connector pins and the corresponding wires.

b. Remove the plastic outer cover (refer to the COVER REMOVAL PROCEDURE under the heading ADJUSTMENTS).

c. To remove the inner metal sleeve, remove the two screws located on the base plate next to the cable. Slide the sleeve away from the housing and over the cable to expose the circuit board.

d. Perform a visual inspection of the detector adapter circuit board.

2. Cable Continuity Check

a. Disconnect the HP 85025C detector adapter from the network analyzer and remove the detector.

b. Remove the plastic outer cover (refer to the COVER REMOVAL PROCEDURE under the heading ADJUSTMENTS).

c. To remove the inner metal sleeve, remove the two screws located on the base plate next to the cable. Slide the sleeve away from the housing and over the cable to expose the circuit board.

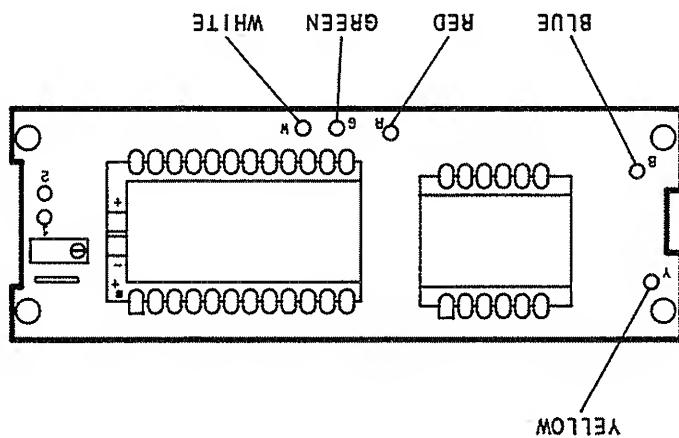
d. Use a digital voltmeter (DVM) to check the continuity of the power cable conductors from the connector pins to the wire connections inside the detector adapter housing. Table 1 lists the cable connector pins and the corresponding wires.

This section provides a sequential procedure for troubleshooting the HP 85025C. To avoid troubleshooting errors and unnecessary repair costs, perform this procedure in the order given.

ROUBLESHOOTING

c. If any of these voltages are not within specification, remove the detector adapter from the analyzer and check the +15V and -12.6V supplies from the HP 85025C or HP 8757A. This step isolates the malfunction to either the HP 85025C or the HP 8757A.

Figure 3. Circuit Board Power Supply Check Points.



b. Check the power supply voltages shown in Figure 3. Because +15V and -12.6V are supplied by the analyzer, these voltages are specified in the analyzer manual. The +8V should be $+8.3 \pm 0.5V$; the -5V should be $-5 \pm 0.5V$.

a. Attach the HP 85025C to the HP 8757A network analyzer and turn the analyzer on.

3. Supply Check

NOTE: For troubleshooting procedures 4, 5, and 6, refer to Figure 4, Component Location Diagram.

4. Buffer Amplifier Check

- a. Attach the HP 85025C to the network analyzer and turn the analyzer on.
- b. Set the analyzer to DC mode.
- c. Connect 1.0V to the input of the detector adapter.
- d. Measure the voltage opposite the connector just inside the main housing. This should also be 1.0V. If it is not 1.0V, replace the connector.
- e. Connect 1.0V to the input of the detector adapter.
- f. Using a DVM, measure the voltage at the pad connected to the yellow (control) wire. This voltage should be less than -5.5V. If it is not within this range, troubleshoot the network analyzer.
- g. Check the voltage at U3, pin 7. This voltage should be $-5V \pm 0.5V$. If it is not within this range, troubleshoot the network analyzer.
- h. Remove the HP 85025C from the network analyzer.
- i. Using an ohmmeter, measure the resistance between U3, pin 7 and U2, pin 10.
- j. If the resistance measured in step 5i is $30k \pm 3k$ ohms, replace the comparator, U3.
- k. If the resistance measured in step 5i is less than 27k ohms, replace the clock, U2.
- l. If the resistance measured in step 5i is greater than 33k ohms, check the connection between U3, pin 7 and U2, pin 8. If this connection is good, replace the clock, U2.

5. Mode Line Check

- a. Connect the HP 85025C detector adapter to the network analyzer.
- b. On the HP 8757A, set the mode to AC.
- c. Using a DVM, measure the voltage at the pad connected to the yellow (control) wire. This voltage should be less than -5.5V. If it is not within this range, troubleshoot the network analyzer.
- d. Check the voltage at U3, pin 7. This voltage should be $-1V \pm 0.5V$. If it is not within this range, go to step 5h.
- e. On the network analyzer, set the mode to DC.
- f. Using a DVM, measure the voltage at the pad connected to the yellow (control) wire. This voltage should be between -3.0V and +3.0V. If it is not within this range, troubleshoot the network analyzer.
- g. Check the voltage at U3, pin 7. This voltage should be $-5V \pm 0.5V$. If it is not within this range, go to the yellow (control) wire.
- h. Remove the HP 85025C from the network analyzer.
- i. Using an ohmmeter, measure the resistance between U3, pin 7 and U2, pin 10.
- j. If the resistance measured in step 5i is $30k \pm 3k$ ohms, replace the comparator, U3.
- k. If the resistance measured in step 5i is less than 27k ohms, replace the clock, U2.
- l. If the resistance measured in step 5i is greater than 33k ohms, check the connection between U3, pin 7 and U2, pin 8. If this connection is good, replace the clock, U2.

6. Preamplifier/Clock Check

- a. Using an oscilloscope measure the signal at U2, pin 1. The waveform should be a 13 Vpp, 27.8 kHz square wave.
- b. The signal present at U2, pin 2 should be the same as the signal in step 6a, but 180 degrees out of phase with that signal.
- c. The signal measured at U2, pin 4 should be a 13 Vpp, 55 kHz pulse wave with a duty cycle of approximately 15%.
- d. If each of the signals measured in steps 6a, b, and c are correct, replace the preamplifier.
- e. If any of the signals is incorrect, replace the clock. If the three signals coming from the clock now match those given in 6a, b, and c, the clock was defective. If not, replace the preamplifier, U1.

Power Cable Replacement

- a. Open the detector adapter using the instructions in Accessing the Circuit Board.
- b. Unsolder the wires connected to the power cable/circuit board assembly. Note that the pads to which the wires are soldered are labeled as indicated in Table I.
- c. Remove the 1/2 inch hex nut that fastens the cable to the end plate.
- d. Remove the old cable.
- e. Replace the cable, and install the new one by performing steps a through d of this procedure in reverse order.

Figure 4b. Component Location Diagram (bottom)

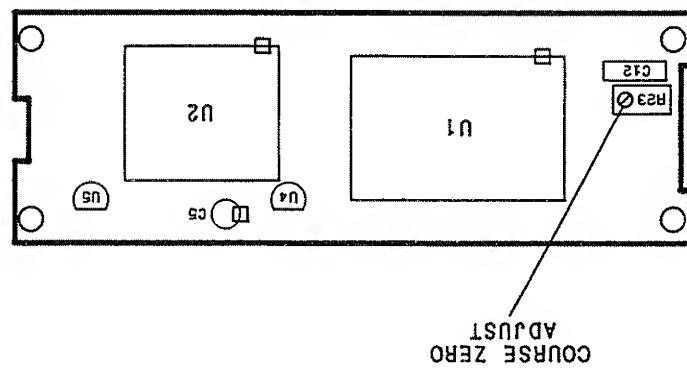
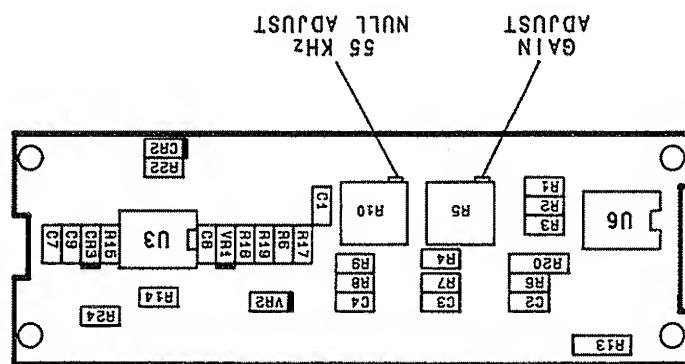


Figure 4a. Component Location Diagram (top)



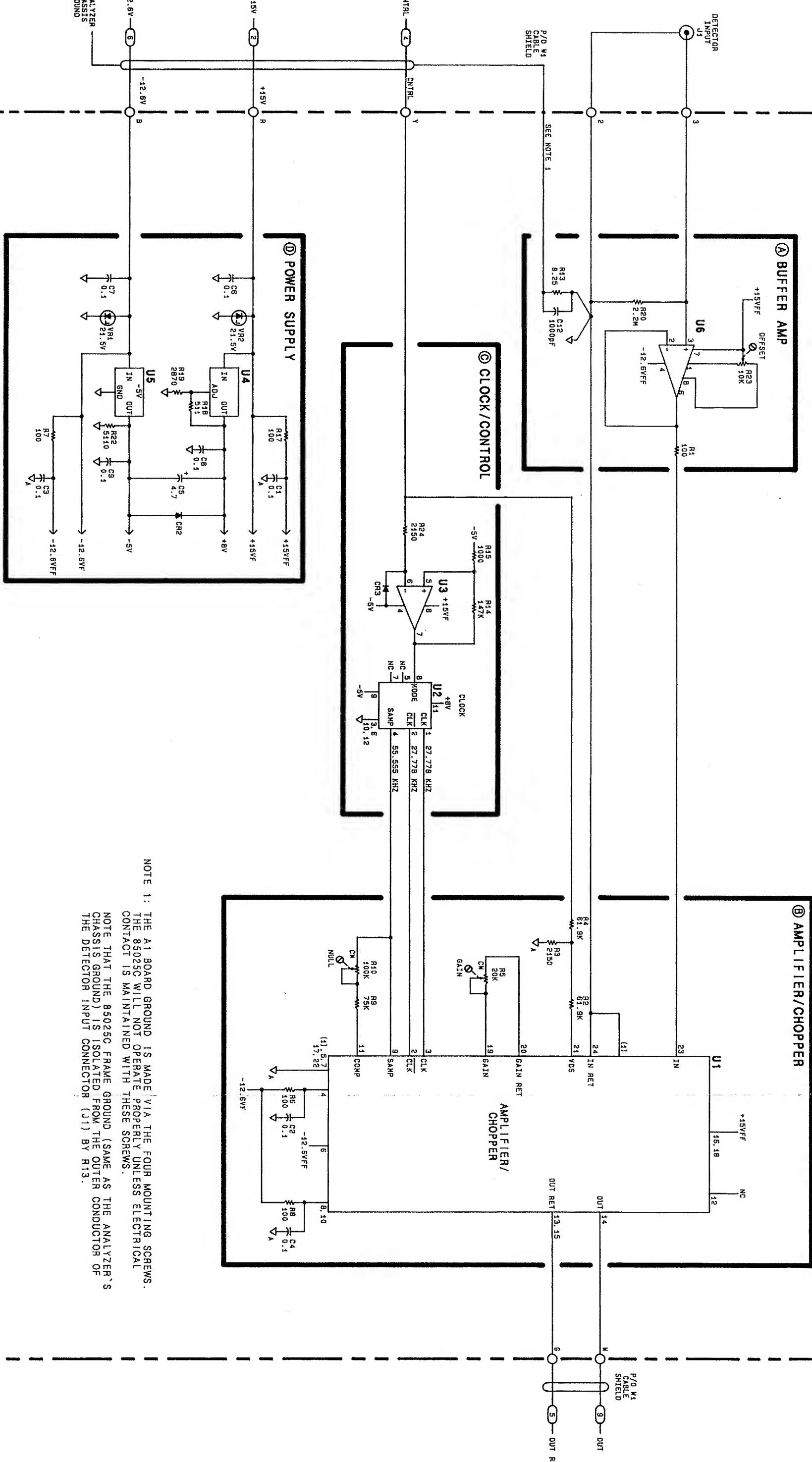


Figure 8-2. A1 Circuit Board Schematic

- d. Address your inquiry to the nearest Hewlett-Packard office.
- c. Include a description and function of the part.
- b. Indicate the instrument serial number.
- a. Indicate the instrument model number.

To request information on a part that is not listed in Table 3:

- The check digit will ensure that your order is processed accurately and quickly.
- c. Address your order to the nearest Hewlett-Packard office.
- b. Indicate the quantity required.
- a. Indicate the Hewlett-Packard part number (with check digit).

To order a part in Table 3:

ORDERING INSTRUCTIONS

- * The manufacturer's number for the part.
- * The five digit code of a typical manufacturer (from Table 2).
- * A description of the part.
- * The total quantity (qty) in the instrument.
- * The part number check digit (CD).
- * The Hewlett-Packard part number.

Table 3 lists replaceable parts. The following information is given for each part:

REPLACEABLE PARTS

This section contains replaceable parts ordering information. Table 1 lists abbreviations used in the parts list, and throughout this manual. Table 2 lists the manufacturers' code numbers that are used in the parts list. Table 3 lists all replaceable parts.

INTRODUCTION

REPLACEABLE PARTS

CODE	MANUFACTURER	ADDRESS	ZIP CODE
04713	Motorola Semiconductor Products	Phoenix Az	85008
06383	Pannduit Corp	Tinley Park Il	60477
06665	Precision Monoliths Inc	Santa Clara Ca	95050
24546	Corning Glass Works (Bradford)	Bradford Pa	16701
25088	Siemens Corp	Iselin Nj	08830
27014	National Semiconductor Corp	Santa Clara Ca	95051
28480	Hewlett-Packard Co Corp	Palto Alto Ca	94304
32997	Bourns Inc Triimpot Prod Div	Riverside Ca	92507

Table 2. Manufacturers Code List

A	Assembly	Alternating Current	Milliampere
AC	Adjust	Nanosconds	Microseconds Part
ADJ	Amplifier	Picofarad	PF
AMP	Capacitor	Precision	PRCN
C	Ceramic	Package	PKG
CER	Diode	Peak-to-Peak	PP
CR	Centimetre	Resistor	R
CM	Dectibels	Radio Frequency	RF
DBM	Dual In-Line Package	Regulator	RGTR
DIP	Farrenheit; Female;	Package Type Designation	SIG
F	Film (resistor); Frequency	Electrostatic Discharge	ESD
FXD	Fixed	TA	Small
GHz	Gigahertz	TC	Tantalum
IC	Integrated Circuit	TRN	Turn
J	Jack	U	Integrated Circuit
IN	Inch	UF	Microfarad
K	Kilo (1000)	V	Variabtles; Volt;
KG	Kilogram	VR	Voltage
L	Inductor (coil)	VDC	Zener Diode
M	Male; Metre	W	Volts, Direct Current
MIC	Manufacturer	ZNR	Zener (diode)

Table 1. Abbreviations

See introduction to this section for ordering information and for selecting the correct part number.

Reference	HP Part Number	Designation	Qty	Description	Mfr Part Number	Code
1	1250-1389	INPUT CONNECTOR SMA(M) (J1)	1	LOCK NUT	85025-20021	
2	85025-40005	INSULATOR	2	BODY	85025-20021	
3	85025-40001	SOLID PLASTIC HALF-BODY	1	LOCK WASHER	85025-40005	
4	85025-20020	BODY PLATE/RAKE	1	WIRE 22 GAUGE 300V 2 INCH LG (Not visible)	85025-20020	
5	890-0034	FLLEXIBLE TUBING, YELLOW, 0.11 FT	2	SOREW-MACHINE-NUT, 4.6MM-LG	8150-0030	
6	890-0030	FLLEXIBLE TUBING, YELLOW, 0.11 FT	2	LOCK WASHER, 20MM	0515-0034	
7	8510-0576	FLREW-MACHINE-NUT, 4.6MM-LG	4	CABLE (W1)	2100-0554	
8	85025-50003	SOREW-MACHINE-NUT, 4.6MM-LG	2	LOCK WASHER, 20MM	2100-0554	
9	8515-0061	LOCK WASHER, 20MM	1	CAN	85025-20007	
10	85025-20006	SOREW-MACHINE-NUT, 4.6MM-LG	2	SREW-MACHINE M2.5X0.45; 4MM-LG	2100-0554	
11	85025-20007	SOREW-MACHINE-NUT, 4.6MM-LG	2	LOCK WASHER, 20MM	2100-0554	
12	8515-0063	LOCK WASHER, 20MM	2	LOCK WASHER, 20MM	2100-0554	
13	85025-20006	SOREW-MACHINE-NUT, 4.6MM-LG	2	LOCK WASHER, 20MM	2100-0554	
14	890-0035	FLREW-MACHINE-NUT, 4.6MM-LG	1	FRAME CASTING	2100-0553	
15	85025-20022	FLREW-MACHINE-NUT, 4.6MM-LG	1	PLASIC HALF-BODY WITH ADJUSTMENT HOLE	2100-0553	
16	890-0035	FLREW-MACHINE-NUT, 4.6MM-LG	1	CABLE MARKER KIT	2100-0553	
17	85025-80006	PLASIC HALF-BODY WITH ADJUSTMENT HOLE	1	ALGMENT TOOL	2100-0553	
18	85025-80007	PLASIC HALF-BODY WITH ADJUSTMENT HOLE	1	PACKAGING FOAM CARTON	2100-0553	
19	85025-80008	PLASIC HALF-BODY WITH ADJUSTMENT HOLE	1	LABEL: COARSE ZERO (Not shown)	2100-0553	

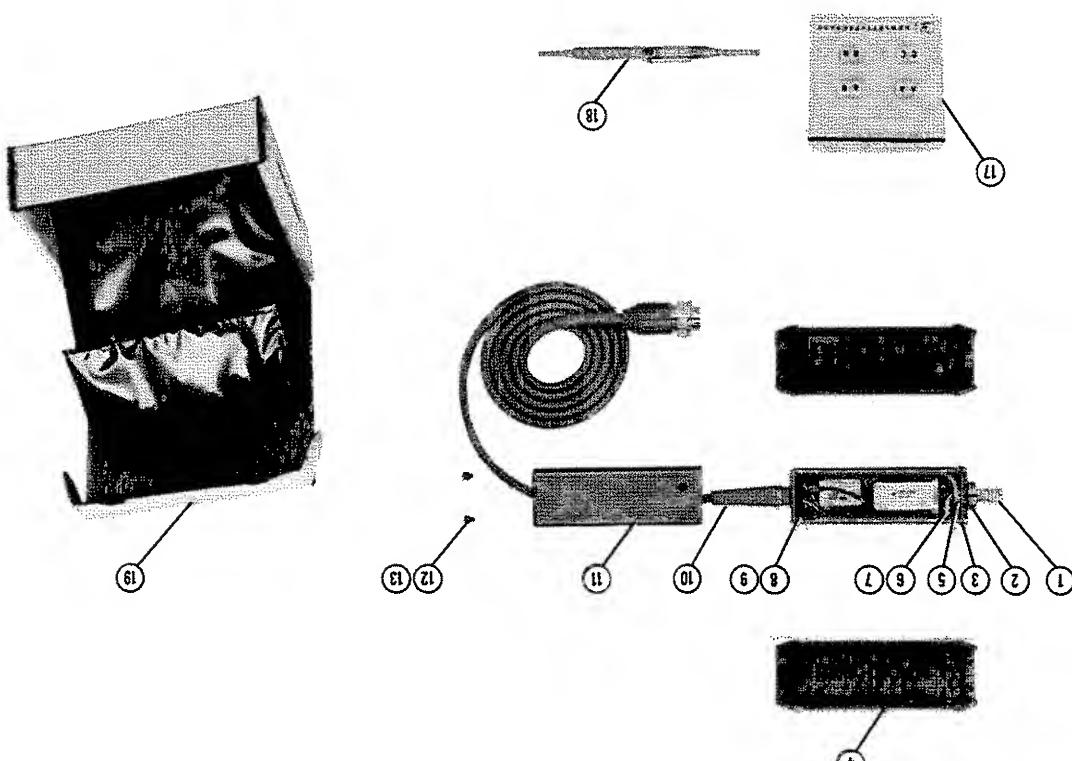


Table 3. Replaceable Parts

Table 3. Replicable Parts cont'd

US FIELD OPERATIONS		EUROPEAN FIELD OPERATIONS		INTERCON FIELD OPERATIONS	
Hewlett-Packard Co.	California, Northern	Hewlett-Packard Co.	Georgia	Hewlett-Packard S.A.	Great Britain
Hewlett-Packard Co.	California, Southern	Hewlett-Packard Co.	Illinois	Hewlett-Packard France	France
1421 South Marinhausen Ave.	1421 South Marinhausen Ave.	Hewlett-Packard Co.	5201 Tollview Drive	1 Avenue Du Canada	Hewlett-Packard GmbH
Fullerton, CA 92681	Fullerton, CA 92681	2000 South Park Place	Rolling Meadows, IL 60008	Zone D'Activite De Courtaboeuf	1750 South Service Road
Mountain View, CA 94039	(708) 255-9800	Altanta, GA 30339	(708) 255-9800	61352 Bad Homberg v.d.H.	Trans-Canada Highway
(714) 999-6700	(708) 255-9800	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	17500 South Service Road
(415) 694-2000	(40) 955-1500	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	Trans-Canada Highway
(800) 752-0900	(40) 955-1500	Hewlett-Packard Co.	(33 1) 69 82 60 60	F-91947 Les Ulis Cedex	17500 South Service Road
19320 Prunetridge Avenue	19320 Prunetridge Avenue	Hewlett-Packard Co.	(33 1) 69 82 60 60	Zone D'Activite De Courtaboeuf	Trans-Canada Highway
Cupertino, CA 95014	Cupertino, CA 95014	2000 South Park Place	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
(800) 752-0900	(40) 955-1500	Altanta, GA 30339	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
24 Inverness Place, CO 80112	24 Inverness Place, CO 80112	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
Englewood, CO 80112	Englewood, CO 80112	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
150 Green Pond Rd.	150 Green Pond Rd.	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
Rockaway, NJ 07866	(201) 586-5400	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
New Jersey	(201) 586-5400	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
Hewlett-Packard Co.	(201) 586-5400	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
1217 Meyrin 2/Geneva	(41 22) 780 8111	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
Switzerland	(41 22) 780 8111	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
150, Route du Nant-d'Avilly	(41 22) 780 8111	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
1217 Meyrin 2/Geneva	(41 22) 780 8111	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
Hewlett-Packard Ltd.	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
Wokingham, Berkshire Triangle	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
Eskdale Road, Wimborne Triangle	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
3495 Deer Creek Road	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
Palo Alto, California, USA	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
3495 Deer Creek Road	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
Hewlett-Packard Company	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
China	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
Shuang Xu Shu	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
Hai Dian District	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
Beijing, China	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
337 Hu Hsing North Road	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
Taipei, Taiwan	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
8th Floor, H-P Building	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
337 Hu Hsing North Road	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road
Taipei, Taiwan	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	F-91947 Les Ulis Cedex	Trans-Canada Highway
886 2) 712-0404	(44 734) 696622	Hewlett-Packard Co.	(49 6172) 16-00	61352 Bad Homberg v.d.H.	17500 South Service Road

13 MARCH 1989

Part of HP Part Number 85025-90057

HP Part Number 85025-91057 (For HP Internal Use Only)



MANUAL CHANGES SUPPLEMENT	
HP 85025C Detector Adapter	
MANUAL IDENTIFICATION	
NOTE	
Manual Changes Supplements are revised as often as necessary to keep manuals as current and accurate as possible. Hewlett-Packard recommends that you periodically order the latest edition of this supplement. Copies are available through any HP office. When ordering copies, quote the supplement part number from the bottom of this page, or the model number and print date from the title page of the manual.	
This supplement contains important information for correcting manual errors and adapting the manual to instruments containing improvements made after the printing of the manual.	
TO USE THIS SUPPLEMENT: Make all changes applicable to the serial prefix or number of your instrument as indicated in the following reference table.	
Note that there may be more than one Title Page and/or Parts Cross-Reference Table included in this supplement. The last changes applicable to your instrument will contain the most current information for these specific pages.	
■ = NEW ITEM, CHANGED ITEM	
MANUAL PART NUMBER 85025-90003	
Date Printed: November 1985	

Serial Prefix or Number	Make Manual Changes
0300 and above	1
All Serials	2

REFERENCE TABLE**■ = NEW ITEM**

Serial Prefix Number	Change Number	Affected Assemblies	New Assembly Number	Affected Manual Sections	Affected Part Number	Affected Assembly Number	Affected Part Number	All Subassemblies	Replaced Diagrams	Replaced Parts	Replaced Diagrams	Replaced Parts	Replaced Diagrams	Replaced Parts
00300	1	A1	85025-60035	N/A	2	A1	N/A	All Subassemblies	Replaced Diagrams	Replaced Parts	Replaced Diagrams	Replaced Parts	Replaced Diagrams	Replaced Parts

NUMBERED CHANGES INDEX

■ = NEW ITEM

16a/16b behind page 16

Add the following page:

Title Page
Page 11/12

Replace the following pages:

ADD - Add the pages to your manual as indicated. Do not remove any pages.

Replace - Replace the existing manual pages with the pages provided in this change. These pages supersede the existing pages in the manual, provided that the serial number prefix of your instrument is the same or higher than the one indicated on this page. To keep your documentation applicable to all versions of instruments, place the superseded pages in the back of your manual for future reference. Note: the old manual title page may be discarded.

INSTRUCTIONS

This change changes A1U6 with a new operational amplifier. The new part eliminates undesired voltage spikes at the output of the detector adapter that occur when the HP 8757 network analyzer is shut off. The new part has different Vcc pin-out.

Change 1 documents units with serial numbers of 0300 and above.

CHANGE 1

HP Model Number: HP 85025C	Manual Part Number: 85025-90003	Date Printed: November 1985
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MANUAL IDENTIFICATION



Printed: NOVEMBER 1985

Microfiche Part Number 85025-90004

MANUAL PART NO. 85025-90003

1400 FOUNTAININGROVE PARKWAY, SANTA ROSA, CA 95401 U.S.A.
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■ Change 1 documents serial numbers 00300 and above.
Manual Changes Supplement Print Date: 14 MAY 1987

For additional information about serial numbers, refer to
INSTRUCTIONS COVERED BY THIS MANUAL, in
General Information.

This manual applies directly to HP 85025C detector adapters
with serial number 00100 and above.

SERIAL NUMBERS

DETECTOR ADAPTER HP 85025C

provided at the back of this manual.
For any assistance, contact your nearest Hewlett-Packard Sales and Service Office. Addresses are
Product maintenance agreements and other customer assistance agreements are available for Hewlett-Packard products.

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W A R R A N T Y

*Recommended replacement for all units, regardless of serial number.

Ref	HP Part Number	Part Number Replace With HP	New Description	Serial Numbers Affected
A1	85025-60017	85025-60035*	Same description	00300 and above
A1U6	1826-0932	1826-1702	Same description	00300 and above

Parts Cross-Reference Table

When replacing a part, cross-reference it to the following table. If the part does not appear in this table, use the original part number in Table 3.

Change R9 to 51.1K and change R10 to 200 K.
Page 11/12, Figure 8-2:

Perform the following changes:

Title Page
Change sheet page 16a/16b

Replace the following pages:

ADD — Add the pages to your manual as indicated. Do not remove any pages.

Replace — Replace the existing manual pages with the pages provided in this change. These pages supersede the existing pages in the manual. To keep your documentation applicable to all versions of instruments, place the superseded pages in the back of your manual for future reference. Note: the old manual title page may be discarded.

INSTRUCTIONS

This change changes the values of A1R9 and A1R10. The new values allow adjustment of the 55 kHz feedback despite the variations of the sample FET.

Change 2 documents units with all serial numbers.

CHANGE 2

HP Model Number HP 85025C	Manual Part Number 85025-90003	Date Printed: November 1985
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MANUAL IDENTIFICATION



Printed: NOVEMBER 1985

Microfiche Part Number 85025-90004

MANUAL PART NO. 85025-90003

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- Change 2 documents all serials.
- Change 1 documents serial numbers 00300 and above.
- Manual Changes Supplement Print Date: 13 MARCH 1989
- For additional information about serial numbers, refer to INSTRUMENTS COVERED BY THIS MANUAL, in General Information.
- This manual applies directly to HP 85025C detector adapters with serial number 00100 and above.

SERIAL NUMBERS

DETECTOR ADAPTER

HP 85025C

provided at the back of this manual.
For any assistance, contact your nearest Hewlett-Packard Sales and Service Office. Addresses are
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Buyer shall pay shipping charges to HP and HP shall pay shipping charges to return the product to HP
from another country.
Buyer shall pay shipping charges to HP and HP shall pay shipping charges to return the product to HP
Buyer. However, Buyer shall pay all shipping charges, duties, and taxes for products returned to HP
from another country.

This Hewlett-Packard instrument product is warranted against defects in material and workmanship for
a period of one year from date of shipment. During the warranty period, Hewlett-Packard Company
will, at its option, either repair or replace products which prove to be defective.

WARRANTY

*Recommended replacement for all units, regardless of serial number.

Ref	HP Part Number	Replace With HP Part Number	New Description	Serial Number Affected
AI	85025-60017	85025-60035*	Same description	00300 and above
A1U6	1826-0932	1826-1702	Same description	00300 and above
A1R9	0698-8615	0698-7277*	Resistor 51.1K 1% .05W	above 00300 and above
A1R10	2100-4098	2100-4229*	R-VT 200K 10% 17T	All serials

Parts Cross-Reference Table

When replacing a part, cross-reference it to the following table. If the part does not appear in this table, use the original part number in Table 3.

